

WHAT IS CLAIMED IS:

1. A method of making an ePTFE tubular structure comprising the following steps: forming a tube of polytetrafluoroethylene; longitudinally stretching said polytetrafluoroethylene tube to form an expanded polytetrafluoroethylene tube, wherein said expanded polytetrafluoroethylene tube is comprised of fibrils oriented in a longitudinal direction of said tube and nodes oriented in a circumferential direction of said tube; and placing the expanded polytetrafluoroethylene tube circumferentially exterior to a longitudinal foreshortening and radially expanding mechanism, wherein radial pressure from said foreshortening mechanism radially expands said ePTFE tubular structure and reorients said fibrils non-longitudinally.
2. The method according to claim 1 wherein said ePTFE tube is heated to a temperature of between about 86°F and 650°F during radial expansion.
3. The method according to claim 2 wherein said reoriented fibrils are hingeably rotated about said nodes.
4. The method according to claim 1 wherein said ePTFE tubular structure exhibits increased longitudinal elongation and radial expansion and recovery properties.
5. The method according to claim 1 wherein said reoriented fibrils are substantially the same length of said originally longitudinally oriented fibrils.
6. The method according to claim 4 wherein said tubular structure is capable of being longitudinally elongated to at least about 1.5 times its original length.
7. The method according to claim 6 wherein said tubular structure is capable of being elongated to at least about 2.0 times its original length.

8. The method according to claim 7 wherein said tubular structure is capable of being longitudinally expanded to at least about 2.5 times its original length.

9. The method according to claim 4 wherein said tubular structure is capable of readily expanded to at least about 1.5 times its original radius.

10. The method according to claim 9 wherein said tubular structure is capable of regularly expanded to at least about 2.0 times its original radius.

11. The method according to claim 10 wherein said tubular structure is capable of radially expanded to at least about 2.5 times its original radius.

12. The method according to claim 4 wherein said tubular structure exhibits said recovery properties in the absence of elastic recovery.

13. The method according to claim 1 wherein said nodes have a first length after said longitudinal stretching and a second length after said radial pressure, wherein said second length is greater than said first length.

14. The method according to claim 1 further including a step of suspending and heating said PTFE tube after longitudinal expansion and prior to placing said tube on said expanding mechanism.

15. The method according to claim 14 wherein said heating step increases structural integrity of said ePTFE tubular structure.